

curb deployments.⁵¹

The effect of such technology on the loop could be revolutionary. The technology will allow network carriers “to sell or lease the individual streams of light in fiber-optic networks that transport voice, video, or image traffic.”⁵² Customers, “such as ISPs, will be able to purchase only the network bandwidth they want, when they want it.”⁵³ It will provide carriers with new revenue streams and allow companies to “boost sales by packaging wavelengths with Internet services and lift efficiency by leasing or trading network bandwidth as needed.”⁵⁴ As one analyst notes:

[O]ptical wavelengths are the building blocks of the next-generation service provider networks. We anticipate that optical wavelengths will be the unit of commerce for all service provider networks.⁵⁵

The Commission should require ILECs to offer optical wavelengths as separate UNEs. The Commission has already taken this approach with line sharing in unbundling the electrical high frequency portion of copper loops. Just as the frequency of a copper loop is part of its “capability,”⁵⁶ so to is the wavelength of a fiber loop or subloop. Carriers should be allowed either to access unbundled loop functionalities such as wavelength, separate from other loop

⁵¹ *Id.*

⁵² *Nortel Shows Off Fiber Breakthrough*, Reuters, August 29, 2000. (“*Nortel Article*”)
<<[<http://www.techweb.com//wire/story/reuters/REU20000829S0002>](http://www.techweb.com//wire/story/reuters/REU20000829S0002)>>

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.* quoting Ron Steele, Chief Technology Officer of NEON Systems, Inc.

⁵⁶ *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket Nos. 98-147 and 96-98, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, FCC 99-355, at ¶ 17. (“*Line Sharing Order*”).

functions, or to access, at their option, the entire unbundled loop facility.⁵⁷ In this way, a carrier that only desired a particular wavelength could purchase that particular wavelength. If a carrier wanted to access all wavelengths of the loop, it could purchase the entire loop and have exclusive use of the facility. The Commission could utilize a similar approach in regard to the DWDM electronics that it uses in regard to line splitters, *i.e.*, allowing the ILEC to install and maintain the electronics unless such control is inhibiting the CLEC's provisioning of services it seeks to provide.⁵⁸

2. Constant Bit Rate Class of Service

Constant Bit Rate ("CBR") is a data service where the bits are conveyed regularly in time and at a constant rate, *i.e.*, "following a timing source or clock just as members of a marching band follow the beat of the drummer."⁵⁹ CBR technology could be the basis for current high-speed access solutions because it allows carriers to provide a full array of services.⁶⁰ This service is especially important in regard to sending uncompressed voice and video traffic because they are sensitive to variable delay, thus, they have to be transported without any interruptions in the flow of data.⁶¹ As data transmission becomes more multimedia, *i.e.*, voice over ATM or IP and videoconferencing, quality of service ("QoS") issues arise.⁶² These media are extremely bandwidth and delay sensitive, and unless packets are capable of being delivered in a real-time,

⁵⁷ *Id.* at ¶ 18.

⁵⁸ *Line Sharing Order* at ¶¶ 76-79.

⁵⁹ Newton's Telecom Dictionary 210 (16th Ed. 2000).

⁶⁰ Larry Hurtado, *Switching and Transmission, In the Loop*, Telephony (September 13, 1999)(*"Hurtado Article"*).

⁶¹ Newton's Telecom Dictionary 210 (16th Ed. 2000).

orderly and timely manner, the quality of service is greatly affected.⁶³ Electronics that provide for CBR QoS address these problems.⁶⁴

In connection with Project Pronto, CLECs have requested that SBC provide CBR class of service because it would provide a guaranteed bandwidth without queuing delays or discards.⁶⁵ SBC's initial position was that it could only provide unspecified bit rate ("UBR") service. UBR service will not permit CLECs to provide the full range of DSL services that they are currently providing and would also preclude future DSL services such as VDSL and G.shDSL.⁶⁶ SBC eventually agreed to provide such service. CBR service would thus avoid the technical limitations imposed by an ILEC's choice of a particular technology that could otherwise limit CLECs to a particular service, such as SBC's initial proposal to limit CLECs to providing ADSL over its NGDLC architecture. Accordingly, the Commission should designate CBR as a UNE.

⁶² *Id.* at 692.

⁶³ *Id.*

⁶⁴ *Id.*; Larry Hurtado, *Switching and Transmission*, Telephony (September 13, 1999) ("Hurtado Article"). Solutions are already being developed to solve the spectrum compatibility problems associated with CBR service, and, thus, allow carriers to reap the full advantage of such service. Next-generation technologies are being developed that will "employ burst-mode transmissions that allow it to 'listen' to line characteristics and manage around potential interfering services, making it compatible with POTS, T-1, ISDN/IDSL DSL, high bit-rate DSL, symmetrical DSL, ADSL, and G.lite services." *Id.*

New electronics are also utilizing "statistically multiplexed variable bit-rate (VBR) ATM traffic classes" to support CBR and VBR applications as well as delivering multiple voice calls over a single ATM permanent virtual circuit. This technology also creates the capability to prioritize network traffic and provide for dynamic bandwidth allocation. Thus, many of the spectral compatibility and interference issues are resolved. This technology facilitates integrated voice and data over DSL. Greg Langdon, *Voice-over stars*, Telephony (December 13, 1999).

⁶⁵ CC Docket 98-141, Letter from @Link Networks, Inc., to Carol Matthey, Deputy Director, Common Carrier Bureau, at p. 1 (June 30, 2000) ("@Link Letter I").

⁶⁶ *Id.* For instance, UBR would not be conducive to providing voice or video over DSL.

3. The Broadband Fiber Loop UNE

The Commission should establish a fiber loop UNE product that would provide a CLEC use of an integrated loop facility. DSLnet proposes that this product offering be an extension of the Broadband Service Offering in the *Project Pronto Order*.⁶⁷ In that offering, SBC offers access to a:

combined network arrangement consisting of: copper facilities from the NGDLC device deployed in remote terminal sites (includes CEVs, huts, and cabinets) to the end user location; a permanent virtual circuit that consists of ATM data transported over a common OC-3c fiber facility from the NGDLC in the remote terminal terminating on the central fiber distribution frame and delivered to a leased affiliated or unaffiliated telecommunications carrier port on the SBC/Ameritech incumbent LEC's OCD in the serving wire center; and a port on the SBC incumbent LEC's OCD with associated cross-connects to extend the port to a point of affiliated or unaffiliated telecommunication carrier virtual or physical collocation.⁶⁸

This product offering should be deemed to be an unbundled network element offered in accord with Sections 251 and 252 of the Act at forward-looking costs.⁶⁹ This product offering should be updated and extended in light of the issues raised above in regard to particular components of the NGDLC architecture and new technologies. In addition, the product offering should be allowed to evolve and adapt to reflect different NGDLC architectures and new product

⁶⁷ *Project Pronto Order* at ¶¶ 30-32 and Appendix A, ¶ 2; *see also*, CC Docket No. 98-141, Letter from Priscilla Hill-Ardoin, Senior Vice President SBC Telecommunications, Inc. to Magalie R. Salas, Secretary of the FCC, SBC Voluntary Commitments at page 2 (August 2, 2000) (“*SBC Commitments Letter*”).

⁶⁸ *Id.*

⁶⁹ As this Commission has noted, it is not enough to implement pro-competitive solutions such as line sharing without more; such solutions will not promote competition unless they are “priced in a way that permits competitive LECs to enjoy the same economies of scale and scope as the incumbent LECs.” *Line Sharing Order*, p. 63. The same would hold for the Fiber UNE,

developments. The product offering should provide for deployment of equipment that gives a CLEC full access to the existing features and functionality of the facility as well as future features and functionality.

E. ILECs Should Be Required to Disclose Fiber Deployment Plans and the Full Technical Capabilities of Next Generation Network Architectures

As discussed, the Commission has already determined that ILECs must offer as part of UNEs the full functions and capabilities of network elements. DSLnet has requested above that the Commission specify that certain capabilities are part of the loop UNE and/or they be designated as UNEs. However, CLECs are disadvantaged in their ability to request advanced capabilities of next generation network architectures because ILECs and their vendors have not fully disclosed the capabilities of the equipment they plan to deploy. The Commission's requirement in the *Project Pronto Order* for SBC to post on its website technical information from its vendor is not likely to be adequate.⁷⁰ The information posted by Alcatel on its website provides little information about the capabilities of the equipment other than what is useful for marketing purposes. Moreover, current network disclosure rules are inadequate for revealing the capabilities inherent in advanced network equipment because those rules only require ILECs to disclose network changes that could affect interoperability.⁷¹ While that disclosure is essential, it only reveals those equipment capabilities that the ILEC has chosen to activate.

Instead, the Commission should require that ILECs fully disclose the capabilities of all deployed equipment, including unactivated capabilities. To the extent vendor proprietary

i.e., unless the pricing for the UNE reflects the economies of scale and scope the ILECs derive from their new-generation architecture, competition will not take root.

⁷⁰ *Project Pronto Order* at ¶ 44.

⁷¹ See 47 C.F.R. § 68.110(b); 47 C.F.R. Sec. 64.702(d)(2); 47 C.F.R. §§ 51.325 -51.335.

information is involved, the Commission may require that ILECs disclose this information subject to appropriate nondisclosure agreements.

F. Keeping Up With The ILECs

CLECs need to be able to keep pace with new technology being rolled out by the ILECs. The moral of the Project Pronto deployment has been that ILECs can leverage their control over the loop network to roll-out new services and technologies at a rapid pace. As the Commission recognized in its *Project Pronto Order*, this new technology could be used to deny CLEC access to facilities and certain types of services if not for the commitments the Commission required SBC to make. For CLECs to continue to have a meaningful opportunity to compete the Commission must utilize pro-competitive rules to ensure that CLECs continue to be share in the same choice of facilities that the ILECs do, *i.e.*, NGDLC loops, dark fiber or spare copper, and that CLECs have the opportunity to partake on a non-discriminatory basis of the new technology that the ILECs will be deploying.

Analysts predict that in the near-future, the ILEC focus will be on technology that will:

support advanced applications and remove deployment roadblocks; squeeze more capacity out of existing in-ground fiber through technologies such as dense wave division multiplexing ("DWDM"); migrate switching to handle packet-based technologies; and, in general, integrate voice and data access platforms for corporate and residential customers.⁷²

In the short term, the focus on technological developments will be on looking for ways to capitalize on recent technological developments and using such developments to integrate voice and data services on the same platform. Network planners are "investigating multiple ways to capitalize on the technology such as providing various next generation DSL services off common

⁷² Vincent Ryan, *Life on the Edge*, Telephony, May 15, 2000. ("Ryan Article").

platforms, reducing the cost to provision services, shaving shelf space in a central office (CO)

and providing customers cost-efficient, integrated voice and data.”⁷³ As one analyst notes:

[w]ith networks constantly changing, every element must morph to meet the needs of the future or risk becoming the next infamous bottleneck. And as more users and applications are shoved into today’s networks, the access portion of networks is becoming increasingly critical. Access technologies and products have evolved to support more services, interoperability and standards.⁷⁴

The access platform of the future appears to be fiber. More and more ILEC networks will be evolving to fiber deployment.⁷⁵ Not only will these carriers be looking to deploy more fiber, but also to squeeze more capacity out of their existing fiber without having to dig up streets.⁷⁶ For instance, as mentioned *supra*, DWDM technology will give a carrier growing capacity and intelligent provisioning of bandwidth, and is perhaps the best long-term strategy for promoting capacity in a network.⁷⁷ Verizon is using this technology in its large metropolitan areas and such technology may help promote its fiber-to-the-curb deployments.⁷⁸

Carriers are also looking to integrate more services on an end-to-end basis. GTE, now part of Verizon, is looking at common platforms using “plug-and-play line cards, or ‘blades,’ that

⁷³ *Id.*

⁷⁴ Liane LaBarba, *Time for a change: Access evolution adds more dimensions*, Telephony, July 3, 2000. (“*LaBarba Article*”).

⁷⁵ *Ryan Article*. The allure of fiber can be seen in the way its use in the Project Pronto architecture has enabled SBC to extend its digital footprint. DSL roll-outs by other ILECs have been “turtle-like” but SBC is using its integration of DSL on DLCs to propel it forward in the DSL market.

⁷⁶ *Id.*

⁷⁷ *Ryan Article*.

⁷⁸ *Id.*

enable different DSL flavors in the same switch fabric.”⁷⁹ New platforms are being developed that include support for symmetrical DSL (sDSL) services such as HDSL2, G.shdsl and ISDN DSL, in addition to multiple voice channels and quality-of-service (“QOS”) classes.⁸⁰ G.shdsl technology will provide for deeper deployment, higher data rates, and better spectral compatibility, thus, making it a more economical solution for service providers.⁸¹ It also facilitates integrated voice and data access.

These technological developments raise many possibilities for CLECs as well as many concerns. This is where properly-framed unbundling rules and requirements along the lines of the *Project Pronto Order* commitments can eliminate roadblocks to competition and facilitate the deployment of this wide array of services to the end-user. First, and most importantly, the CLEC needs to be guaranteed access to the network access platform be it through next-generation DLC loops, unbundled dark fiber, or spare copper. Without access to these facilities, CLECs could find themselves on the outside looking in at the new telecommunications marketplace. Second, ILECs have an inherent advantage in technology deployment. They have one network to deal with, and they control that network. CLECs have to tailor their services to the diversity of technological deployments utilized by the various ILECs. Certain technology may be more appropriate in one ILEC topology; other technology in others. Thus, a CLEC needs maximum flexibility in terms of access possibilities. It should be allowed to purchase the entire loop facility with attached electronics as an unbundled network element. If it wants to attach its

⁷⁹ *Ryan Article*.

⁸⁰ *Id.*

⁸¹ Keith Atwell and Sacha Lindecke, *Great Expectations*, Telephony, June 5, 2000. (*Atwell Article*).

own electronics or minimize use of electronics to facilitate the particular service it seeks to provide, the CLEC may partake of its unbundled access to dark fiber. If its product offerings rely on use of copper facilities, then it may access the copper portion of the loop or spare copper facilities.

As one analyst notes, “service providers will get more aggressive to mix-and-match types of access to get to customer.”⁸² The Commission must establish pro-competitive rules that will allow the CLECs to have the same flexibility of access to customers that ILECs currently enjoy and will enjoy in the future.

III. THE STATUTORY REQUIREMENT OF NONDISCRIMINATORY OFFERING OF COLLOCATION SUPPORTS FAR REACHING PRO-COMPETITIVE RULES

A. The Commission Has Broad Discretion to Implement Complete Parity Between ILECs and CLECs Concerning Access to ILEC Central Offices

Section 251(c)(6) of the Act requires ILECs to provide for “physical collocation of equipment necessary for interconnection or access to unbundled network elements” “on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.”⁸³ The Commission has authority to require absolute competitive parity between ILECs and CLECs with respect to occupation and use of ILEC central offices and remote terminals. The Commission has heretofore recognized the vital importance of competitive parity in collocation by requiring as part of its conditions in authorizing the SBC/Ameritech merger that SBC’s incumbent LECs must accommodate unaffiliated collocating carriers in the same way that they accommodate their

⁸² *Ryan Article.*

⁸³ 47 U.S.C. Section 251(c)(6).

Advanced Services Affiliate.⁸⁴ For example, if the affiliate collocates advanced services equipment such as packet switches in the ILEC's central office, unaffiliated carriers must be allowed to collocate packet switches on the same rates, terms and conditions as provided to their affiliate.⁸⁵

The Commission has the authority to mandate such a requirement of every incumbent local exchange carrier. In fact, it would be hard to overstate the breadth of the Commission's authority to prescribe reasonable terms and conditions for collocation and to prevent undue discrimination by the incumbent against CLECs in providing collocation of equipment deemed "necessary" for interconnection or access to UNEs.

Where, as under the 1996 Act, the Commission's authority to prevent discrimination by incumbent LECs is unequivocally broad, there can be little doubt of the FCC's authority to adopt reasonable collocation rules.⁸⁶ First, as this Commission has recognized, the prohibition against discrimination that appears throughout Section 251 is unqualified and absolute; unlike other statutes, Section 251 does not qualify the term "nondiscriminatory" with the words "undue" or "unjust and unreasonable."⁸⁷ Second, by requiring incumbent LECs to provide interconnection to their competitors, the Act creates an incentive "for the LEC to discriminate against its competitors by providing them with less favorable terms and conditions of interconnection than it provides itself."⁸⁸ That manifest incentive warrants full enforcement of the strict prohibition on discrimination comprehended in the statutory language of Section 251. Accordingly, in

⁸⁴ *Project Pronto Order* at ¶ 36.

⁸⁵ *Id.* at n. 103.

⁸⁶ *See Local Competition Order* at ¶ 218.

⁸⁷ *Id.*

interpreting the prohibition on discrimination under Section 251, the Commission stated that:

We believe that the term ‘nondiscriminatory,’ *as used throughout section 251*, applies to the terms and conditions an incumbent LEC imposes on third parties as well as on itself. In any event, by providing interconnection to a competitor in a manner less efficient than an incumbent LEC provides itself, the incumbent LEC violates the duty to be “just” and “reasonable” under section 251(c)(2)(D).⁸⁹

This interpretation of nondiscriminatory applies equally to collocation deemed “necessary” under Section 251(c)(6) as it does to all the other various obligations imposed on ILECs under Section 251.

B. The Commission Should Prescribe Collocation Standards that Place the CLECs at Competitive Parity with ILECs

In accordance with its comprehensive authority to assure reasonable and nondiscriminatory physical collocation in ILEC central offices, in this proceeding the Commission should reestablish rules governing the terms and conditions for collocation that will achieve complete competitive parity between the incumbent LECs and their CLEC customers. In formulating these guidelines, the Commission should take as its baseline the statutory mandate under Section 251(c)(6) that the terms and conditions for collocation be reasonable and nondiscriminatory. The Commission should establish rules that provide that CLECs have the same rights to collocate in ILEC central offices and remote terminals- in terms of access, price, and quantity and use of space - as those are enjoyed by ILECs. The statutory requirement that ILECs provide physical collocation can mean no less. In subsequent sections of these comments, DSLnet suggests specific rule changes that will achieve this overall statutory mandate.

IV. THE COMMISSION SHOULD REESTABLISH AND STRENGTHEN RULES GOVERNING COLLOCATION IN ILEC CENTRAL OFFICES

⁸⁸ *Id.*

⁸⁹ *Id.* (emphasis added).

A. The Statute Permits Collocation Of A Full Range of Telecommunications Equipment

1. “Necessary” Means “Necessary for Effective Competition”

Congress intends the Commission to “provide for a pro-competitive, de-regulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition.”⁹⁰ In establishing collocation rules, the Commission should keep in mind this overarching pro-competitive goal of the 1996 Act. The Commission should view the “necessary” standard of Section 252(c)(6) of the Act as coextensive with the ILEC’s obligations to provide interconnection and access to UNEs on just and reasonable and nondiscriminatory terms and conditions under Sections 251(c)(2)-(3). This approach will best achieve the goals of the 1996 Act.

2. “Interconnection” and “Access to UNEs” Should be Broadly Defined

The Commission should broadly define interconnection and access to UNEs. Specifically, so called packet-switches and equipment that interact with or receive packetized data are integral to interconnection and, therefore, necessary under the statutory test and eligible for collocation even on a stand-alone basis. As Chairman Kennard recently noted, “I am convinced that once Americans discover the cost and functionality of IP telephony, they will leave the circuit-switched world forever. And it will happen very fast.”⁹¹ The migration from a

⁹⁰ S. CONF. REP. No. 104-230, at 1 (1996), *supra*.

⁹¹ *Internet Telephony: America Is Waiting*, Remarks by Federal Communications Chairman William E. Kennard Before the Voice Over Net Conference, Atlanta, Georgia (September 12,

circuit-switched world does not have to wait for the blossoming of IP telephony, however. The migration is already occurring as packet switches and other “advanced services equipment” are already performing many of the functions previously performed by circuit-switches even in regard to POTS. This equipment goes beyond mere switching functionality, however, by providing many other functions that are central to interconnection and access to UNEs.

The OCD is actually a very illustrative example of how equipment such as ATM switches and routers are necessary for interconnection. The OCD, which is described more fully in Section II *supra*, is central office equipment that routes packet signals from several remote terminal sites to a carrier’s packet switched network.⁹² Under SBC’s Project Pronto deployment, OCDs are the only feasible point at which CLECs can get access to their ATM bitstreams for their customers served by this next-generation loop architecture deployment.⁹³ Thus, the OCDs are essential for interconnection as well. It is necessary that CLECs use an ATM device in order to interconnect with these OCDs. Therefore, CLECs may collocate such devices.⁹⁴

The Commission should also define access to UNEs as encompassing any interaction with the features, functions, and capabilities of UNEs. The Act defines network elements as including their “features, functions, and capabilities.”⁹⁵ In order to access those functionalities, CLECs must employ equipment that is capable of interacting with those features, functions, and capabilities. Therefore, any such equipment meets the statutory necessary test because it enables

2000)(“*Chairman Kennard Speech*”).

⁹² *Project Pronto Order* at ¶ 4, n. 12.

⁹³ *See supra* note 33.

⁹⁴ Qwest’s recent announcement that it will permit collocation of ATM and packet switching equipment is a positive one. Qwest Communications, Inc., *Qwest Communications Announces Landmark Initiative To Open Local Communications Markets* (Sept. 19, 2000)(“*Qwest Press Release*”). The Commission should require all ILECs to do the same.

CLECs to access those features, functions, and capabilities of the UNEs. As ILECs employ more advanced electronics in loops and central offices, the range of equipment that CLECs may collocate correspondingly increases. Fundamentally, ILECs are now increasingly deploying data equipment and optical systems as part of loops and other UNEs. As described previously in these comments, the Commission should designate a number of new UNEs concerning ILECs' deployment of next generation architectures. The Commission should determine that any equipment that interacts with any of the capabilities of these UNEs is necessary for access to UNEs.

B. Any Commercially Available Equipment that Enables Interconnection or Access to UNEs Meets the "Necessary" Test

The Commission should determine that equipment that enables interconnection or access to UNEs meets the necessary test. Indisputably, in order to obtain interconnection or access to UNEs, CLECs must use such equipment. In the words of the D.C. Circuit, such equipment is "indispensable"⁹⁶ for, or, alternatively "directly related to"⁹⁷ interconnection or access to UNEs because without such equipment, CLECs may do neither. Therefore, such equipment meets the statutory test of necessary for interconnection or access to UNEs because it enables interconnection and access to UNEs by virtue of capabilities and functions that make possible such interconnection or access.

There are numerous products on the market that have such capabilities and that enable interconnection or access to UNEs. The only issue, therefore, is what among the total set of

⁹⁵ 47 U.S.C. Section 3(29).

⁹⁶ *GTE v. FCC*, 205 F.3d at 424.

⁹⁷ *Id.*

equipment that enables interconnection or access to UNEs may be collocated. The Commission should reject ILEC requests that can be expected to be made in this proceeding to narrowly define the types of equipment that enables interconnection or access to UNEs. Instead, the only test that the Commission could administer as a practical matter is to let the marketplace determine the equipment that enables interconnection or access to UNEs. In other words, if the equipment is commercially available and it enables interconnection or access to UNEs, it may be collocated. Absent reliance on the marketplace to define what equipment may be used for interconnection or access the UNEs, the Commission could potentially become involved in detailed examination and virtual design of telecommunications equipment. Further, allowing the marketplace to define what equipment enables interconnection or access to UNEs will assure that ILECs are not able to use equipment classifications,⁹⁸ evaluations and testing as another tool for delaying competition.

As Chairman Kennard has noted, the FCC should allow “entrepreneurs to innovate and trust the American people to choose the technology they want.”⁹⁹ Imposing restrictive definitions on what is necessary for interconnection and access to UNEs will unduly limit the roll-out of equipment to those that “satisfy” the definition. The proceeding evaluating SBC’s Project Pronto deployment demonstrated how crucial the equipment that is collocated is to the diversity of product offerings and services that end users can enjoy. The Commission in that

⁹⁸ ILECs are currently attempting to classify cutting-edge equipment used in data communications as switching equipment in an attempt to exclude it from eligibility for collocation and disadvantage competitors. An inability of CLECs to collocate the most advanced and efficient equipment, even as ILECs themselves deploy it, would cause serious competitive harm to CLECs. As explained, however, the functionality of this equipment is integral to interconnection and access to UNEs and, therefore, eligible for interconnection under the statute.

⁹⁹ *Chairman Kennard Speech* at p. 3.

proceeding recognized that “unleashing the full potential of the equipment” will help “competitive LECs provide innovative, exciting new services.”¹⁰⁰

The Commission has also recognized the folly of automatically applying old laws to new technologies.¹⁰¹ Chairman Kennard has noted that it “doesn’t make sense to apply hundred-year-old regulations meant for copper wires and giant switching stations to the IP networks of today.”¹⁰² In 1996, when the Telecommunications Act was passed the reality of the network was copper wires and large switches. The reality of today is a mixed fiber/copper architecture and compact, integrated multifunctional equipment. The reality of tomorrow is yet to be determined. The Commission must refrain from applying a restrictive definition of what is necessary for interconnection/access to UNEs that freezes the marketplace in a 1996 reality. The notion of what is necessary for interconnection and access to UNEs is different in 2000, and it will continue to evolve with new technological capabilities. The Commission needs to implement a definition that can keep pace with these changing capabilities.

C. Multifunction Equipment Is Eligible For Central Office Collocation

1. Multifunction Equipment Is Necessary for Interconnection If It Contains Features and Functions That Enable Interconnection or Access to UNEs

As discussed, any equipment that is commercially available and that enables interconnection or access to UNEs meets the necessary test. Further, consistent with the ordinary meaning of the words in the statute and the statutory purposes, “necessary” may be interpreted to mean that the ILEC must provide collocation of any equipment that contains the features and functionalities enabling interconnection, despite additional telecommunications functionalities

¹⁰⁰ *Project Pronto Order* at ¶ 45.

¹⁰¹ *Chairman Kennard Speech* at p. 3.

¹⁰² *Id.* at 4.

that this equipment may contain. This would include equipment that enables interconnection but also performs data routing and other functions, including switching, to the extent that any such functionalities may not themselves be viewed as enabling interconnection or access to UNEs.

As a matter of “the ‘ordinary and fair meaning of [the statute’s] terms,’”¹⁰³ “equipment necessary for interconnection” may easily be read to encompass equipment generally available in the marketplace that has the features and functionalities necessary for interconnection, even though it also has other features and functionalities which are integrated with the interconnection functionality.

With interconnection equipment, the the technology and the market are developing quickly. In 1996, for example, a typical Class 5 Switch was approximately 100 times the size of a typical ATM or modern “soft” switch; in 1996, a switch required a separate room. Now, several modern switches can fit comfortably within the space of a typical 10ft x 10ft collocation cage. With developing technologies, integration of functionalities that was impossible in 1996 is now totally practical. The concept of “equipment necessary for interconnection” cannot be frozen at the level of the technology in effect in 1996. One of the principal purposes of the Telecommunications Act of 1996 was “to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans.”¹⁰⁴ In light of this purpose, there is no reason to believe that Congress intended to freeze the implementation of “equipment necessary for interconnection” at the level of the technology available in 1996, precluding collocation of subsequently-developed multi-functional technology.

¹⁰³ *GTE v. FCC*, 205 F.3d at 424, quoting *AT&T Corp. v. Iowa Utilities Board*, 525 U.S. 366, 390 (1999).

¹⁰⁴ Sen. Rept. No. 104-230, 104th Cong. 1st Sess. (March 30, 1995) at pp. 1-2.

Therefore, it is reasonable to interpret Section 251(b)(6) as permitting collocation of a wide range of telecommunications equipment that performs many functions in addition to enabling interconnection and access to UNEs.

2. Inability to Collocate Multifunction Equipment Would Create Economic and Practical Barriers to Competition

Apart from the fact that so-called multifunction equipment may be collocated notwithstanding its other functions so long as it enables interconnection and access to UNEs, collocation of such equipment is also “necessary” because it would effectively thwart CLECs’ ability to compete if they could not do so. This may be readily seen by a quick review of the costs involved. First, the CLEC would have to run lines from the ILEC Central Office to its own switch site. The costs for this alone could be substantial. In addition, it would be necessary for the CLEC to obtain space for the multifunction equipment which would involve an up-front cost for space build-out and an additional monthly rental fee. And, this is on top of collocation space in the ILEC central office which would be necessary for interconnection and access to UNEs. When these costs are multiplied by the many times in which they would be incurred in order to use multifunction equipment to provide service, it is apparent that collocation of such equipment is necessary in order for CLECs to be able to effectively compete. This is especially true for less populated and rural areas. Accordingly, the Commission should conclude that collocation of multifunction equipment is necessary because of the economic and practical barriers to competition that would be created by a mandatory location of such equipment at a separate location .

Qwest’s recent announcement that it will permit collocation of some multifunction equipment, including ATM and packet switches, is a positive development and a recognition of

the efficiencies created by such a practice.¹⁰⁵ As Qwest itself notes, allowing such equipment in the central office will mean that:

CLECs will no longer need to lease extra space outside of a central office. It creates a more efficient network, because all elements are contained within the central office, and it requires less time to deploy.¹⁰⁶

Thus, ILECs themselves, recognize the importance of allowing the deployment of such equipment in the central office.

3. Require ILECs to Permit Collocation of Multifunction and Stand-Alone Equipment As a Permissive and Reasonable Condition of Collocation

- a. The Commission Has Authority to Prescribe Reasonable Terms and Conditions on Collocation under Section 251.

Section 251(c)(6) requires ILECs to provide physical collocation of equipment necessary for interconnection and access to UNEs on rates, terms, and conditions that are reasonable and nondiscriminatory. Pursuant to that section, the Commission may, and should, require that ILECs permit collocation of multifunction equipment and some stand-alone equipment as a reasonable condition of providing collocation generally. Thus, the Commission may define the “reasonable conditions” pursuant to which ILECs must offer physical collocation.¹⁰⁷

DSLnet emphasizes that the obligation of incumbent LECs to provide physical collocation of equipment “necessary for interconnection or access to unbundled network

¹⁰⁵ Qwest has proposed revisions to its statement of generally available terms and conditions that permits collocation of this equipment, subject to some conditions. *Statement of Generally Available Terms and Conditions for Interconnection, Unbundled Network Elements, Ancillary Services, and Resale of Telecommunications Services Provided by Qwest Corporation*, Six State Workshop, September 27, 2000, Section 8.2.1.1.2.

¹⁰⁶ *Qwest Press Release* at p. 2.

¹⁰⁷ *In re Trans Alaska Pipeline Rate Cases*, 436 U.S. 631, 653 (1978).

elements”¹⁰⁸ is not an abstract one. Incumbent LECs must offer physical collocation “on rates, terms, and conditions that are just and reasonable, and nondiscriminatory”¹⁰⁹ This fundamental requirement is the governing regulatory standard under which the Commission is authorized to adopt provisioning rules that will ensure competitive parity between collocating CLECs and their incumbent hosts. The court’s decision in *GTE v. FCC* is not to the contrary. There, the court struck down regulations that variously allowed CLECs to choose where to establish collocation on the LEC’s property, prohibited LECs from requiring CLECs to use separate entrances to access their own equipment, and barred LECs from requiring competitors to use separate or isolated rooms or floors. However, the court did not rule out reasonable guidelines for the provisioning of collocation space to achieve the manifest statutory objectives of the Act. To the contrary, the court merely stated that, on remand, “the FCC will have an opportunity to refine its regulatory requirements to tie the rules to the statutory standard. . . .”¹¹⁰

In carrying out its authority to establish terms and conditions for collocation, the Commission is not bound to adopt rules that require LECs to provide only the minimum terms and conditions “necessary” to allow for interconnection. To be sure, the court stated that “[t]he statute requires only that LECs reasonably provide space for ‘physical collocation of equipment necessary for interconnection or access to unbundled elements at the premises of the local exchange carrier,’ nothing more.”¹¹¹

However, the court was merely defining the equipment for which incumbents are

¹⁰⁸ 47 U.S.C. § 251 (c)(6).

¹⁰⁹ *Id.*

¹¹⁰ *GTE v. FCC*, 205 F.3d at 426.

¹¹¹ *Id.* at 423.

required to provide collocation space. Once equipment is determined to be *necessary* for interconnection or access to UNEs - and thus eligible for collocation on incumbent premises- the ILEC's offering must satisfy the requirement that the terms and conditions of such collocation be "reasonable" and "nondiscriminatory."¹¹² Indeed, once collocation is deemed necessary for interconnection and access to UNEs under Section 251(c)(6), the requirement that the incumbent offer collocation on "reasonable" and "nondiscriminatory" terms and conditions applies *a fortiori*.

b. Requiring Collocation of Multifunction Equipment Is A Reasonable Condition

As explained, not allowing collocation of multifunction equipment would astronomically increase a CLEC's cost of providing competitive services, especially in smaller and rural markets, because of the need to obtain separate space, and communications links to backhaul traffic from the ILEC central office. This would also substantially delay, and otherwise handicap CLEC entry into new markets.

At the same time, however, allowing collocation of multifunction and stand-alone telecommunications equipment would increase CLEC occupation of ILEC central offices not at all, or at most marginally. In fact, with the increasing efficiency and compactness of telecommunications equipment, collocation of many types of equipment requires little more than a refrigerator size space. Many CLECs have already built and paid for collocation space(usually at exorbitant prices).¹¹³ Simply stated, therefore, it is reasonable to permit CLECs to collocate

¹¹² 47 U.S.C. § 251(c)(6).

¹¹³ The Commission has recognized that ILECs routinely charge in the range of \$300,000 for collocation space. *In the Matters of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Interexchange Carrier Purchases of Switched Access Services Offered*

multifunction equipment because it would greatly facilitate their ability to compete and would not have any significant impact on ILECs central office space.

Allowing for the collocation of such multifunctional equipment would also provide for much needed clarity for CLECs in regard to their operations. With a restrictive definition of what is “necessary,” CLECs would be most likely be forced to litigate their right to collocate certain equipment on a piece by piece basis. The time and expense consumed to resolve such issues would provide a tremendous opportunity cost. CLECs would be faced with the Hobson’s choice of attempting to challenge an ILEC denial of their right to collocate or resigning themselves to collocate such equipment in a separate location. Either scenario will raise the costs of utilizing such equipment significantly. In addition, the time spent either litigating the issue or trying to find an alternative place to have the equipment would ensure that CLECs fall further behind the ILECs in the race to roll out new technology.

DSLnet emphasizes again that ILECs’ prices for collocation space are so high that it would make little sense for CLECs to collocate equipment beyond what is “necessary” for interconnection and access to UNEs. Further, the local telecommunications marketplace is in transition to competition during which CLECs must have the ability to collocate the equipment that they have already chosen to collocate. ILECs are attempting to use the collocation provisions of the statute as a sword against CLECs and to hinder competition, when in fact these provisions are intended to be used as a shield to protect CLECs from ILECs’ resistance to offering collocation on reasonable terms and conditions. For all these reasons, it is a reasonable

*by Competitive Local Exchange Carriers, Petition of US WEST Communications, Inc. for
Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA, CC
Dockets Nos. 96-262, 94-1, 98-157, and CCB/CPD File No. 98-63, Fifth Report and Order and*

condition of making collocation available generally that ILECs permit collocation of multifunction equipment.

D. ILECs Must Be Required to Permit CLECs to Self-Provision Cross-Connection Between Collocators in ILEC Central Offices

1. Section 251(c)(6) Applies to Interconnection Between CLECs on ILEC Premises

The Commission should determine that the 251(c)(6) requirement that ILECs' provide physical collocation of equipment "necessary for interconnection . . . at the premises of the local exchange carrier" may be read under "the 'ordinary and fair meaning of [the statute's] terms,'"¹¹⁴ to require interconnection at the LEC with other CLECs' networks as well with as the ILECs' network provided the other CLECs have interconnection points "at the premises of the local exchange carrier." Under the literal definition of the statutory language, cross-connection is "interconnection . . . at the premises of the local exchange carrier."

ILECs will undoubtedly argue that the intended meaning of the statute is to provide only for collocation of equipment necessary for interconnection to the ILECs' network. Nothing in the legislative history, however, supports that limited statutory interpretation.

Requiring ILECs to permit CLEC cross-connection under section 251(c)(6) is also consistent with the structure of the statute. Section 251(a) requires all carriers - including the CLECs - to interconnect with other carriers. Moreover, section 251(c)(6) requires any conditions imposed on interconnection to be "nondiscriminatory." Denial of cross-connection would violate the requirement that ILECs provide collocation on a nondiscriminatory basis

Further Notice of Proposed Rulemaking, FCC 99-206, 14 FCC Rc. 14221 at ¶ 81 (1999)(*Pricing Flexibility Order*).

¹¹⁴ *GTE v. FCC, supra*, 205 F.3d at 424

because the ILEC could connect with a collocating CLEC at the ILEC's central office, but another CLEC could not. Cross-connection is necessary to put each collocating CLEC in a position to achieve the same interconnection with other CLECs as the ILEC itself is able to do. Even if "interconnection" were to be defined narrowly to encompass only interconnection with the ILECs' network, any condition denying cross-connection would violate the statute's prohibition against "nondiscriminatory" conditions. The result is the same: under section 251(c)(6), the ILECs cannot refuse cross-connection to any collocating CLEC. Any contrary rule would violate one of the basic purposes of the Act - and of section 251(c)(6)- to providing CLECs "nondiscriminatory access."¹¹⁵

2. Cross-Connection Is a Reasonable Condition of Collocation

For the same general reasons supporting collocation of multifunction of equipment as a reasonable condition of collocation generally, the Commission should also require ILECs to permit CLECs to self-provision cross-connection with other CLECs as a reasonable condition of offering collocation. Self-provisioned cross-connection is vital to CLECs' ability to compete and does not significantly affect ILECs.

Of particular concern is that the inability to directly cross-connect with other co-located CLECs would effectively thwart CLEC advanced optical networking initiatives that require the use of dark fiber capacity leased from other competitive carriers because adequate optical cross-connect services from ILECs are either unavailable and/or would degrade the quality of service that CLECs are able to provide in comparison to that available with direct cross-connection between CLECs. As with all cross-connects obtained from an ILEC, obtaining an optical cross-

¹¹⁵ House Rept. No. 104-204, supra, at p. 73.

connect from ILECs adds needless additional cost and installation time for each circuit. In particular, the use of ICB (Individual Case Basis) pricing by ILECs in many cases leaves an open door for both unrestrained costs and delays.

In addition, use of ILEC hardware for optical cross-connection raises equipment compatibility issues that will further limit technology choice and likely decrease a CLEC's ability to deploy the most modern and advanced solutions available today. Use of ILEC hardware also reduces circuit reliability because additional electronic hardware will be placed in the circuit. In contrast, direct self-provisioned cross-connection between CLECs does not raise any of these issues or thereby deny any users a competitive service quality choices.

At the same time, permitting CLECs to self-provision cross-connection in ILEC central offices will not significantly increase occupation of ILEC premises, or other burdens on ILECs. In many cases, cabling can be run between adjacent collocation cages or equipment racks. In other situations where cabling must be run for the distance between CLECs' respective collocation spaces, is not likely there would be any increased burdens to ILECs central office arrangements since central offices by their very nature are set up for running cabling and performing interconnection. In any event, the Commission could establish reasonable limits on CLECs self-provision of cross-connection, such as requiring that only technically qualified personnel perform this work. It is not required under the statute for the Commission to ban CLEC self-provisioned cross-connection. Instead, for the reasons discussed above, the Commission may, and should, require ILECs to permit CLECs to self-provision cross-connection as a reasonable condition of offering collocation of equipment that enables interconnection or access to UNEs.

In this area too, Qwest is showing leadership among the ILECs through its plans to